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# Disability and Perceptions of Work and Management

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## *Abstract*

Matched employee-employer data from the 2004 Workplace Employment Relations Survey is used to examine differences in work-related perceptions between disabled and non-disabled employees. Even after accounting for differences in personal, job and workplace characteristics, disabled employees are found to hold more negative views of the treatment of workers by managers and, consistent with this, they express less job satisfaction and commitment towards their organisation. The influence of disability is also examined across workplaces defined by sector, the presence of disability related policies and practices, and employee views of management to explore the role of corporate culture.

Keywords: Disability, fair treatment, perceptions, workplace commitment, job satisfaction, influence.

JEL: J0, J14, J28, J71.

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## 1. Introduction

Disabled individuals in Britain are less likely to be employed than their non-disabled counterparts and, on average, earn less when in work (see, for example, Kidd *et al.* 2000 and Jones *et al.* 2006). Investigation into the influence of disability on other *in work* outcomes has, however, been limited and is restricted to features such as the type of employment (Jones and Latreille, 2011), job related training (Fumagalli, 2008) and hours of work (Jones, 2007). There is less evidence still on how disabled employees feel about their work and their perceptions of their workplace or management. This is despite growing evidence of the importance of subjective measures (Oswald, 2010), including that work-related measures such as job satisfaction and commitment are correlated with objective outcomes such as quits and workplace performance (Clark, 2001 and Brown *et al.*, 2011).

Despite their differing international and institutional contexts, among the few studies explicitly concerned with the work-related perceptions of disabled employees, there appears to be a consensus. Disabled employees are found to hold more negative views across a range of measures including in relation to their own treatment at work in the UK (Fevre *et al.*, 2008), job satisfaction in Canada (Uppal, 2005) and more general measures of fair treatment by management in the US (Schur *et al.*, 2009). The critical question is *why* disabled employees hold different views of work and if, and how, workplace characteristics, policies and practices are important. Schur *et al.* (2005) emphasize the importance of corporate culture, defined as ‘the influence of an organization’s underlying values, explicit policies, day to day practices, as well as supervisor and co-worker attitudes’ (page 14-15), on the perceptions and engagement of disabled employees. Using US data, Schur *et al.* (2009) find evidence in support, that is, disability is negatively associated with a range of employee perceptions except within the ‘fairest’ firms.

This paper uses data from the 2004 Workplace Employment Relations Survey (WERS), a nationally representative survey of workplaces in Britain, to provide a comprehensive examination of the work-related perceptions of disabled employees. More specifically, we ask ‘Do disabled employees hold different perceptions from non-disabled employees relating to their

work and workplace?’ The multi-dimensional nature of employee perceptions is captured by considering a range of measures including employees’ views relating to (1) the workplace or, more specifically, management and (2) their own experience of, and feeling towards, their work including job satisfaction, influence and affective commitment. Where disabled workers are found to hold different views, the paper explores the source of this disparity. Initially we ask ‘Are differences in perceptions evident after controlling for personal and employment related characteristics?’. That is, the paper examines whether differences in perceptions are a consequence of disabled workers having different characteristics and holding different *types* of work. Further, it examines whether controlling for ‘outcomes’ such as pay, training incidence and supervision which may, in part, reflect unequal treatment, moderate this relationship. It is the residual influence of disability that could be attributed to factors such as differences in preferences for work or job attributes among disabled workers or, differences in the perception of treatment by employers and co-workers.

The matched nature of WERS facilitates a detailed examination of the influence of the workplace. We control for workplace fixed effects to account for unobserved workplace heterogeneity and identify disability perception gaps that exist within the workplace. Further, these disability gaps in perceptions are also compared across workplaces with different characteristics. In particular, differences between the public and private sector are considered given the variation in culture and practice which may exist as a consequence of differences in social responsibility, particularly the status of the government as a model or ‘good’ employer. Indeed, previous evidence confirms both a greater prevalence of effective equality practices (Hoque and Noon, 2004) and improved outcomes, such as in terms of the gender pay gap (Chatterji *et al.*, 2011), in the public sector. The role of disability specific workplace policies and practices which may be thought of as capturing aspects of corporate culture outlined in Schur *et al.* (2005) are also explored. Following Schur *et al.* (2009) consideration is also given to workplaces as defined by overall employee perceptions to examine whether disabled employees benefit disproportionately from being in a workplace where employees generally express more positive views about how managers treat employees.

Understanding the drivers of differences in the attitudes and opinions of disabled relative to non-disabled employees is important for both employers and policymakers who aim to retain and support disabled workers. In particular, consideration of the workplace provides an opportunity to gain insights into the effectiveness of employer policies and practices. The benefits of improving work-related perceptions among disabled employees extend beyond individual wellbeing since differences in perceptions may contribute to (as well as result from) the labour market disadvantage experienced by disabled individuals. As such, understanding the determinants of the views and opinions of disabled employees is likely to enhance our overall understanding of the influence of disability in the labour market. This is critical given ambitious Public Service Agreement targets aimed at increasing the employment rate among disabled individuals in Britain.

The remainder of this paper is structured as follows. Section 2 briefly considers key elements of the relationship between disability and labour market outcomes in Britain before considering recent international studies where disability and employee perceptions have been explored. Section 3 outlines the WERS data and statistical methodology applied. The results are outlined in Section 4 and Section 5 concludes.

## **2. Background**

There is growing evidence which documents and attempts to explain the employment gap between disabled and non-disabled individuals in Britain (Jones, 2006, Berthoud, 2008). While attention has focused on employment, at least partially due the scale of the gap (disabled employment rates are estimated to be less than 50% of the non-disabled rate), a number of recent studies have considered earnings (Jones *et al.*, 2006, Longhi *et al.*, 2012). In comparison to employment, earnings gaps are far narrower; however, at between 10-20% they are significant and comparable to other equality groups. A significant disability earnings gap remains after controlling for observable personal characteristics and is predominantly attributed to the unobserved influence of disability on productivity rather than discrimination (Jones *et al.*, 2006, Longhi *et al.*, 2012). Only a handful of studies have, however, investigated disability and other *in work* outcomes and these have largely focused on other ‘hard’ outcomes such as the prevalence

of self-employment (Jones and Latreille, 2011), part-time employment (Jones, 2007) and job related training (Fumagalli, 2008).<sup>i</sup> The concentration of disabled employees in non-standard employment has been attributed to its role in accommodating disability in work.

Predominately as a result of the introduction of the 1995 Disability Discrimination Act (DDA), and its employer accommodation component, a largely separate literature has started to examine the prevalence and nature of disability policies and practices across workplaces (see, for example, Woodhams and Corby, 2007 and Simm *et al.*, 2007). This has incorporated analysis of employers understanding of, and attitudes towards, disability and disability related policy (see, for example, Davidson, 2011). Indeed, Simm *et al.* (2007) highlight the positive influence of workplace size, the public sector and previous experience of disabled employees on employer's awareness and understanding of disability. However, few studies have been able to link the outcomes of disabled workers to workplace policies and, as such, the literature has largely considered disability disadvantage independently of the workplace. Jones and Latreille (2010), who find a positive influence of an equal opportunities policy, but a negative influence of workplace accommodations, on the relative wage of disabled employees is a notable exception.

In terms of theory, Stone and Colella (1996) provide a comprehensive framework which outlines a range of factors which are hypothesized to determine the treatment of disabled individuals within organizations. These include environmental and organisational characteristics, attributes and responses of the disabled individual, attributes, perceptions and expectations of employers and co-workers, the nature of the job and, employers and co-workers treatment of disabled individuals. In terms of the latter, three alternative models of discrimination offer important insights (see Baldwin and Johnson, 2006 for details). Becker's (1957) model argues that discrimination arises from prejudice or disutility among employers, co-workers and/or customers when they come into contact with disabled employees. Phelps (1972) alternatively suggests discrimination results from imperfect information about individual productivity that causes an employer to use information about the group as a whole to assess the productivity of a disabled individual. Such discrimination is exacerbated if employers underestimate the productivity of disabled individuals in general. Finally, discrimination may arise due to employer power, that is, employers may discriminate against or exploit disabled individuals if, on average, they are less

likely to leave the firm. This may occur, for example, due to geographic or occupational immobility.

Recent empirical analysis has considered employee's own perceptions of their treatment and several studies consider disability among a range of employee equality characteristics. For example, using data from the 1998 WERS, Forth and Ricon-Aznar (2008) find some evidence of a positive effect of the presence of an equal opportunities policy on disabled employees perceptions of fair treatment by managers, the relationship between managers and employees, and loyalty. They, however, find that other measures of equality practices (such as workplace accommodations) are unrelated to disabled employee attitudes. Using information from the 2008 Fair Treatment at Work Survey, individuals with a long-term health problem are found to be more likely to experience problems at work relating to employment rights or unfair treatment, discrimination or bullying/harassment (Fevre *et al.*, 2009). Consistent with this, Fevre *et al.* (2011) find that those with a disability or long-term illness are more than twice as likely to report having been unfairly treated at work which is defined to include the allocation of the type of work, hours of work and 'being ignored' in addition to pay. Bewley and Forth (2010) confirm that long-term health problems remain a significant determinant of reporting adverse treatment in work (defined as a problem relating to legal rights at work; unfair treatment; discrimination; sex-based harassment; other forms of bullying and harassment) even after controlling for other factors such as the power of the employer, sector and other job characteristics. The influence of disability is considered more extensively by Fevre *et al.* (2008) who use data from the 2008 British Workplace Behaviour Survey. Consistent with the above evidence, disabled workers are found more likely to report negative treatment at work which ranges from having views ignored and reporting employers not following the proper procedure to being treated in a disrespectful or rude way and reporting experiencing physical violence at work. The magnitude of the differences in reporting is substantial and varies considerably by the nature of the condition. Further, many of the differences in perceived treatment exist even after controlling for demographic and workplace variables.

Internationally, there is also growing interest in the relationship between disability and experience and perceptions of work. Uppal (2005) and Pagán and Malo (2009), using data from

Canada and Spain respectively, both examine job satisfaction of disabled employees and find they are less happy at work. Uppal (2005) finds that, with the exception of employees with disabilities relating to mobility, differences in personal or workplace characteristics do not explain this differential. Pagan and Malo (2009) find, in a decomposition between groups defined on the basis of disability, that although disabled workers have lower job satisfaction the ‘returns’ to employment characteristics, such as hourly earnings, are actually higher for disabled workers. They argue that this is a result of lower expectations among disabled workers. In the US, however, Schur *et al.* (2009) consider a broader range of measures of perceptions. They set out seven key hypotheses, where their main argument can be summarised as follows. Disabled employees are disadvantaged in terms of pay, training and decision making relative to non-disabled employees. This disadvantage gives rise to a more negative view of their company, lower job satisfaction and company loyalty. Corporate culture or the workplace climate is an important influence on this relationship. Schur *et al.* (2009) investigate these issues using US data from the NBER Shared Capitalism Project which provides information on 30,000 employees from 14 companies selected due to the existence of a performance-based pay system. They find evidence that disability has an important influence on turnover, willingness to work hard, loyalty and job satisfaction among all workplaces except the fairest firms. They therefore argue that the perceptions of disabled workers are particularly sensitive to ‘workplace culture’ as measured by workplace fairness. In subsequent work, Schur *et al.* (2011) use the 2006 nationally representative General Household Survey and find a disability gap in perceptions of job security, flexibility, treatment by managers and job satisfaction but not in organizational commitment or turnover intentions. They find no evidence that differences in employee preferences for job characteristics or discrimination arising from employer power explain their results. In a similar manner, this analysis examines the drivers of work-related perceptions among disabled workers in Britain by using matched employee-employer data from WERS to which we now turn.

### **3. Data and Methodology**

WERS 2004 is a stratified random sample of 2,295 workplaces with more than 5 employees taken from the Inter-Departmental Business Register. Data on workplace characteristics are



obtained from a management questionnaire, whereas information relating to employees is taken from a self-completed questionnaire given to a random sample of 25 employees at each workplace (or all employees in smaller workplaces). Employee level weights in WERS, which account for both the selection of workplaces and employees within workplaces, are applied throughout to ensure the analysis is representative of the population of employees.

After matching information from employees to the management information, a total of 22,451 employee observations from 1,733 workplaces are available. All employees are asked: *Do you have any long-term illness, health problem or disability? By long-term, we mean that it can be expected to last for more than one year.* Those who answer positively are also asked: *Does this illness or disability affect the amount or type of work you can do?* Consistent with the literature and equality legislation we focus on disability (restricting long-term health problems), defined here by work-limiting disability, that is, an employee is required to respond positively to both questions. This group is separated from those with a long-term health problem which (according to this definition) is not disabling and those without a long-term health problem. For simplicity, on the occasions when the latter two groups are combined they are referred to as non-disabled employees.<sup>ii,iii</sup> According to this definition, 4.5 percent of employees are disabled which, as expected, is substantially below that typically recorded among the working-age population due to the low employment rate of individuals with disabilities. The prevalence of disability in WERS is comparable to 5.5 percent recorded in NBER data (Schur *et al.*, 2009) but is below the corresponding rate in the 2004 UK Annual Population Survey (7.9 percent) albeit both defined using a slightly different set of questions. Further investigation suggests the difference in prevalence compared to the APS arises due to differences in the reporting of long-standing health problems (rather than disability conditional on long-standing health problems) which may reflect a reluctance to disclose health problems in a survey which is distributed through the workplace. The impact of this on our estimates is ambiguous and depends on whether employees in more supportive workplaces are more likely to report their health problems. There is, however, a broader limitation of using work-limiting disability in this context since a disability may not be work-limiting if it is accommodated sufficiently by an employer. If, as a consequence, disabled employees are over represented in less accommodating workplaces the disability gap in perceptions is likely to be overestimated.

In addition to information on personal and work-related characteristics, employees are asked a series of attitudinal questions. This information is used to consider aspects of (1) employees perception of the workplace, or more specifically the management, as well as (2) feelings about the work itself including employee commitment, job satisfaction and influence in their job. As such, our analysis aims to consider a broad range of distinct perceptions rather than be a exhaustive examination of subjective information provided within WERS. An overall measure of employee perceptions of how managers treat employees is based on responses to the following question: *Now thinking about the managers at this workplace, to what extent do you agree or disagree with the following? (1) Can be relied upon to keep to their promises, (2) Are sincere in attempting to understand employees' views, (3) Deal with employees honestly (4) Understand about employees having to meet responsibilities outside work, (5) Encourage people to develop their skills, (6) Treat employees fairly.* In each case, responses are ranked on a five point scale from *strongly disagree* to *strongly agree*. The overall index (perception of managers) is generated using an additive scale of responses to all six measures (Cronbach's alpha of 0.93) where the original values are coded (1-5).<sup>iv</sup> It is acknowledged that such an encompassing measure captures a range of dimensions of manager behaviour which are not restricted to equality. However, when each element is considered separately, significant disability gaps are evident (see Table 1). It is also important to note that the index relates to an individual's perception of the managers and treatment of employees in general rather than themselves, although this is likely to be informed by the employee's own experience at work and their understanding of normal or fair treatment/procedures (see Fevre *et al.*, 2011 for a discussion). These questions are asked to all employees and, as Forth and Ricon-Aznar (2008) note, responses from employees holding management responsibilities may be biased upwards. Descriptive statistics confirm that employees in the occupational group 'managers and senior officials' report more positive views. In what follows, all employees are retained within the sample but controls for occupation are included in the analysis. The key findings are, however, robust to the exclusion of this occupational group.

An additional, more specific, measure of consultation and responsiveness of managers to employees, is created using responses to the following *Overall, how good would you say*

*managers in this workplace are at...* (1) *Seeking the views of employees or employee representatives* (2) *Responding to suggestions from employees or employee representatives* (3) *Allowing employees or employee representatives to influence final decisions*. For each, responses are ranked on a five point scale from *very poor* to *very good*. As above, an overall index (manager consultation) is created and the Cronbach's alpha is 0.93.

In terms of assessing affective commitment, employees are asked *To what extent do you agree or disagree with the following statements about working here?* (1) *I share many of the values of my organisation*, (2) *I feel loyal to my organisation*, (3) *I am proud to tell people who I work for* where, again, responses are ranked on a 5 point scale from *strongly disagree* to *strongly agree*. These questions have been developed from the Mowday Organizational Commitment Questionnaire, which has been applied extensively (see, Bryson and White, 2008). An overall measure (commitment) is created using an additive index across all three statements (Cronbach's alpha of 0.85) and, as such, encompasses aspects of identification as well as loyalty. As Green (2008) notes, loyalty to the organisation is easier to define within the private sector since there is some ambiguity as to what is meant by the organisation in the public sector and, partly as a consequence, the analysis is also performed separately by sector.

An employee's perception of their own influence or control over their work is generated from responses to the following *In general, how much influence do you have over the following?* (1) *What tasks you do in your job* (2) *The pace at which you work* (3) *How you do your work* (4) *The order in which you carry out tasks* (5) *The time you start or finish your working day*. Responses to each are ranked on a four point scale from *none* to *a lot*. An overall index across the five measures is created (influence) where Cronbach's alpha of 0.79 indicates reliability. Finally, an overall value for job satisfaction is constructed from responses to the following: *How satisfied are you with the following aspects of your job?* (1) *The sense of achievement you get from your work*, (2) *The scope for using your own initiative*, (3) *The amount of influence you have over your job*, (4) *The training you receive*, (5) *The amount of pay you receive*, (6) *Your job security*, (7) *The work itself*. Each response is ranked on a five point scale from *very dissatisfied* to *very satisfied* and is included within an overall index (job satisfaction) where the Cronbach's alpha of 0.83 indicates reliability.

Each perception index ( $P_{ij}$ ) is modelled for the  $i$ th employee within the  $j$ th workplace as follows:

$$P_{ij} = \alpha_0 + \alpha_1 D_{ij} + \beta_1 X_{ij} + \phi W_{ij} + \gamma_1 Z_j + \tau_1 O_{ij} + \varepsilon_{ij} \quad (1)$$

Disability status ( $D_{ij}$ ) includes dummy variables for work-limiting disability and non-work-limiting long-term health problems respectively. The effect of disability status on perceptions is therefore measured relative to those without a long-term health problem. Differences in personal characteristics ( $X_{ij}$ ) are controlled for by including age, gender, marital status, children, highest qualification, ethnicity within the specifications. In an additional specification, the characteristics of employment ( $W_{ij}$ ) such as occupation, part-time employment, temporary employment, gender job concentration and trade union membership are included to identify the influence of disability among individuals within similar jobs. We acknowledge that since this information is also provided by the employee it may suffer from common method bias and this motivates our focus on more objective measures. Workplace characteristics ( $Z_j$ ), provided by the manager, include region, size, single establishments and industrial sector. WERS contains a rich set of information about practices at the workplace and, although it is not possible to control directly for co-worker or supervisor attitudes, which Schur *et al.* (2005) suggest will be important, it is possible to control for the prevalence of teamwork in the workplace, and the presence of a formal job evaluation and appraisal system, as proxies for joint working and monitoring respectively. Brown *et al.* (2011) also argue that the presence of performance related pay and whether employees are led to expect long-term employment prospects will affect commitment and these additional controls are included, together with variables capturing the employer's approach to filling vacancies. It is also possible to control for redundancies and disputes between management and workers within the last year to capture the current environment. In the most comprehensive specification, the influence of disability is thus measured for an 'identical worker', that is, someone with the same personal, employment and workplace characteristics. Full definitions of all variables and their means are provided in Appendix Table 1.

Characteristics of employment and the workplace may also be thought of as outcomes which themselves reflect the disadvantage associated with disability and this motivates their sequential inclusion in the specifications. However, following Schur *et al.* (2009), an additional specification is also estimated which enhances the controls with an explicit set of variables capturing potential disadvantage namely hourly pay, receipt of training within the last 12 months and supervisory responsibilities. These variables are referred to as outcomes at work ( $O_{ij}$ ) and it is anticipated that their inclusion will moderate the influence of disability on perceptions.

In each case  $P_{ij}$  is an index value which is bounded between 1-5 (1-4 for influence) and increases in agreement with the underlying components. The models are initially estimated by OLS but in additional specifications the matched nature of the data is utilized to control for workplace fixed effects which capture unobserved workplace heterogeneity and, where the influence of disability can be interpreted as for an ‘identical worker within the same workplace’.<sup>v</sup> In all models standard errors are adjusted for clustering of employees within workplaces. A proportion of all workplaces will, however, have no employees reporting disability and, the sensitivity of the estimates to their inclusion in the sample is examined. We separate workplaces on the basis of whether at least one employee reports disability in the employee sample. It is acknowledged that this is an imperfect measure since it is based on only a sample of employees in larger workplaces.<sup>vi</sup> However, the same specification is estimated using this restricted sample of 705 (41%) workplaces, thereby identifying the within workplace disability gap from workplaces with at least one disabled employee.

The matched nature of WERS also facilitates examination of the role of the workplace and, particularly employer practices, consistent with the framework of Stone and Colella (1996). The within workplace disability gap can thus be examined across groups of workplaces. First, separate analysis is performed for the public and private sector. Second, information provided by the manager on disability specific workplace policies and practices is utilized to capture an element of corporate culture (Schur *et al.*, 2005). Four policies are used to capture different aspects of the support for disabled individuals within the workplace. These include (1) the presence of an equal opportunities policy which makes reference to disability, (2) the workplace having made an adjustment to accommodate disabled employees, (3) whether the firm actively

tries to encourage applications from disabled individuals and (4) whether the firm monitors its recruitment, pay or promotion practices for disability discrimination. It is acknowledged that these are broad measures that capture the incidence rather than intensity of the activity. For example, the presence of an equal opportunities policy does not imply it is effective (see Hoque and Noon, 2004) and the nature of accommodation may range from a minor adjustment to benefit a single employee to routinely making substantial adjustments. Further, our measure does not distinguish necessary adjustments that are refused from situations where no adjustment is necessary and, provides no indication of employee awareness of such policies/practice. Nevertheless, these policies are used as a proxy for the culture/environment surrounding disabled workers and the general acceptance of employees with disabilities. In terms of the analysis the sample is split by the presence or absence of each disability policy to examine how the disability perception gap varies across workplaces.<sup>vii</sup>

Finally, following Schur *et al.* (2009), the influence of disability on employee commitment, job satisfaction and influence is examined across workplaces as defined by overall employee perceptions of how managers treat employees and manager-employee consultation. These measures were chosen since they are broader and more likely to reflect perceptions of manager's treatment of workers in general rather than simply the employee's own experience. For each workplace an average of the index (perception of management and management consultation) is created across all employees in the sample. It is acknowledged that such measures may have high standard errors particularly where the employee sample is small but the intra-class correlation (ICC) of the average measure (0.75 and 0.72 respectively) lie above the recommended value of 0.7 for the reliability of the group rating (LeBreton and Senter, 2008). Workplaces are then split on the basis of quartiles of the distribution across workplaces to examine whether the disability perception gaps narrow in workplaces where managers are viewed more positively, and as more consultative, by employees.

Before turning to the results, it is briefly worth considering the potential drivers of a disability gap in perceptions which exist after accounting for personal, employment and workplace influences. Most obviously a gap may reflect genuine or perceived inequality in treatment by employers. It may, however, reflect differences in preferences for work (Schur *et al.*, 2011),

perceived costs and benefits associated with work or expectations about work (Pagán and Malo, 2009). There are, however, a number of alternative explanations. First, it is possible that feelings of dissatisfaction with health affect subjective responses in relation to work. Reassuringly, however, Powdthavee (2009) finds that (1) the impact of disability onset depends on the particular facet of life satisfaction under consideration and (2) the negative impact of mild disability on satisfaction is relatively short-lived. Second, there may be common individual level unobservables, such as personality traits, which affect the reporting of both self-reported measures of disability and perceptions. For example, if unobservables which are positively correlated with reporting disability are negatively related to reporting positive perceptions the coefficient on disability will be downward biased.<sup>viii</sup> Interestingly, however, Powdthavee (2009), using data from the British Household Panel Survey, finds that life satisfaction scores were at least as high as non-disabled individuals for individuals who become disabled (measured 5 years before onset). It is not, therefore, simply the case that more dissatisfied people have a higher probability of becoming disabled. There is also potential reverse causality if particularly negative experiences in work are a cause of disability. Unfortunately, it is not possible to identify the nature or cause of disability in WERS in order to explore the possibility of reverse causation further. However, in the 2004 UK Labour Force Survey (LFS) mental health problems account for the main health problem among 6.4% of work-limited disabled employees and, as such, we believe the influence to be small. Finally, in considering the views of those people who are currently in work, our estimates are potentially subject to selection bias, particularly if dissatisfied disabled workers are more likely to exit the labour market than equally dissatisfied non-disabled individuals, due, for example, to disability affecting the value of leisure (Pagán and Malo, 2009). However, Schur *et al.* (2009) find no influence of introducing a correction for selection into employment into their analysis.

#### **4. Results**

Table 1 provides, separately for disabled and non-disabled employees, average index values and averages of the responses to the individual components as well as one or two related subjective measures which are not considered in further detail here. In all cases an increasing value indicates greater agreement with the relevant statement. However, since the response categories

differ across (but not within) questions, the average scores can be compared across individuals responding to the same question but not different questions (so, for example, the index for job satisfaction cannot be compared to that for commitment). Regardless of the precise measure, and consistent with the existing international evidence, employees with a work-limiting disability consistently indicate more negative perceptions. A significant disability gap exists across the measures of perceptions with management consultation and treatment of employees. Consistent with this, disabled employees report more negative perceptions of the relationship between managers and employees. Disabled employees consistently report less influence across the job characteristics captured here, lower job satisfaction across all facets and less commitment towards their organization. Within the non-disabled group (results not reported) those with a non-work-limiting long-term health problem report significantly lower perceptions of management, manager consultation and job satisfaction (with training and pay) than those without a long-term health problem, but to a lesser extent than those with work-limiting disability. No significant differences are observed in terms of employee commitment or influence.

Before turning to the more detailed analysis of these perceptions it is worth briefly considering differences in personal, employment and workplace characteristics by disability status (see Appendix Table 1) which may contribute to the raw differences in perceptions identified above. Confirming previous studies the work-limited disabled are, on average, older and less well qualified. Differences in the nature of employment are fairly modest with disabled employees slightly more concentrated in low skilled occupations, more likely to work part-time and more likely to work in the public sector. They are also more likely to be trade union members. The analysis of ‘outcomes’ confirms disabled workers are less likely to supervise, less likely to have received training, and that there is an hourly pay gap of about 7%.

Table 2 provides the coefficients for work-limiting disability (relative to those with no long-term health problem) for each of the five perception indices. In each case the coefficients are presented in different columns for different specifications of equation (1). Column (1) excludes control variables, (2) includes only personal characteristics, (3) also includes employment characteristics, (4) also includes workplace characteristics and (5) additionally includes



employee outcomes of pay, training and supervisory responsibilities. In column (6) workplace characteristics are replaced by a full set of workplace fixed effects and (7) presents the same model except the sample is restricted to workplaces with at least one disabled employee. The raw disability gap is significant across all measures and its magnitude varies from -0.31 index points for perceptions of management to -0.15 for job-related influence. The inclusion of controls for personal characteristics have no consistent impact on the magnitude of the gaps, although, consistent with a concentration of disabled employees in poorer quality jobs, these narrow with the inclusion of employment related characteristics. The inclusion of workplace characteristics in (4) tends also to narrow the gap slightly. The inclusion of pay, training and supervisory responsibility, which all have a positive influence on perceptions, narrows the disability gap further but it remains significant. The gap in perceptions is, therefore, not purely a consequence of disabled employees experiencing disadvantage in work-related outcomes. Even with the inclusion of workplace fixed effects, which control for unobservable workplace characteristics, the disability gap remains significant across all measures. Indeed, the introduction of the comprehensive set of controls account for a maximum of 50% of the raw gap across the measures (being more important for perceptions of management than employees feelings towards their work). The influence of disability that remains is consistent with disability affecting employee perceptions in the same job/workplace and, potentially, reflects real or perceived differences in treatment by employers or co-workers either through discriminatory practices or due to restrictions imposed by the disability itself. This conclusion is not sensitive to the restriction to workplaces with at least one disabled employee in column (7), where the magnitude of the within workplace disability gaps remain largely unaffected. The influence of non-work-limiting long-term health problems (not reported) remain significant in the most comprehensive specification relating to perceptions of managers and manager consultation but the magnitude of the effects are about half as large as for the work-limited disabled. This is consistent with the absence of an influence of preferences and/or productivity since, by definition, this group is not restricted in work. It, however, suggests that individuals with a long-term health problem who are not classified as work-limited disabled may still experience unequal treatment at work.

Tables 3 and 4 present a similar set of specifications but examine workplaces in the public and private sector respectively. With the exception of manager consultation which is narrower in the public sector, the raw disability gaps are similar across sectors. As above, the inclusion of employment and outcome variables reduce the influence of disability. For manager consultation, commitment, influence and job satisfaction, the extent of the narrowing is far greater within the public sector. Indeed, in the public sector, the disability gap in perceptions becomes insignificant in the most comprehensive specification for manager consultation, employee commitment, and influence. In the private sector disability gaps in perceptions remain across the entire set of measures analysed here. That the influence of disability is absent across several measures in the public sector is consistent with qualitative evidence which suggests disabled employees have a more positive experience of work in the public sector (Adams and Oldfield, 2011). However, while formal tests support the separate analysis by sector, the difference in the influence of disability between the public and private sector is not statistically significant at conventional levels.

Our next step is to investigate the influence of more specific aspects of corporate culture. First, Table 5 presents results for four disability specific policies/practices all of which are more prevalent in the public sector.<sup>ix</sup> For each, the disability gap in perceptions is presented from the most comprehensive (fixed effects) specification for all workplaces where the policy is present and absent. The results are not, however, sensitive to restricting the sample to workplaces with at least one disabled employee. Disability gaps in perceptions appear to be at least as prominent in workplaces with an equal opportunities policy which mentions disability. This is consistent with their prevalence but lack of effectiveness (Hoque and Noon, 2004). However, even when there is evidence of monitoring, this does not seem to improve the (relative) perceptions of disabled employees. There is, however, some evidence that the disability perception gap narrows in workplaces which have made an adjustment for a disabled employee consistent with this being a more active and visible movement by the employer. What appears most important is the workplace encouraging applications from disabled employees, possibly reflecting its more proactive nature, which may therefore reflect a more general acceptance of disability within the workplace. In workplaces that actively encourage applications from disabled individuals the gap in perceptions relating to manager consultation, commitment, job satisfaction and influence

becomes insignificant. It is, however, possible that the influence of policies are to some extent cumulative; that is, workplaces that have active hiring policies may also be more likely to also have other policies relating to disability. Since there is evidence for this in these data, the influence of the number of policies is also examined, but there is no evidence that the gap in perceptions declines with the number of disability specific policies at the workplace (results not reported). As such, it appears to be the presence of more proactive policies which influence the disability gap in perceptions. However, consistent with the analysis across sectors, it is not possible to reject the equality of the influence of disability across workplaces with and without proactive policies/practices, limiting the conclusions that can be made in terms of this aspect of corporate culture.

Table 6 presents similar analysis for the indices which capture employee views of their work, although here workplaces are split by overall employee perceptions of how managers treat employees (columns 1-4) and manager consultation with employees (5-8). The overall picture appears to be of diminishing disability gaps in workplaces which are generally viewed more positively in terms of perceptions of managers and consultation/responsiveness (particularly in the top 50% of the distribution).<sup>x</sup> Consistent with Schur *et al.* (2009), it seems that disabled employees benefit disproportionately from being in these workplaces. Indeed, in workplaces in the top half of the distribution the disability gaps become insignificant indicating disability has no influence on perceptions. Moreover, for job satisfaction, the difference in the influence of disability across quartiles is significant at conventional levels and provides support for a role of corporate culture as measured by general employee perceptions. Interestingly, the public sector is only slightly over-represented among workplaces in the top half of the distribution suggesting employee perceptions capture a different aspect of corporate culture.

## **5. Conclusion**

Using WERS 2004, a nationally representative matched employee-employer dataset for Britain, this paper investigates the differences in perceptions of work and management between disabled and non-disabled employees. By examining the role of the employee and the workplace it provides a comprehensive examination of the determinants of the views of disabled employees in

Britain and, as such, makes a useful contribution to the existing international evidence. In terms of the research questions set out in the introduction, there is clear evidence that work-limited disabled employees hold more negative perceptions than employees without a long-term health problem across all the measures considered here, which include both views of management as well as employee perceptions of the work itself (commitment, job satisfaction and influence). In terms of the raw indices, work-limited disabled employees report between 0.15-0.31 points lower (0.21-0.33 of a standard deviation) than those without a long-term health problem and, while the consistency between measures confirms these views and perceptions are inter-linked, the absolute gap is wider for the more general measures of perceptions with managers than their own experience. Further, the inclusion of personal and employment related characteristics narrow the disability gaps in perceptions slightly. Differences in the nature of the workplace and outcomes also contribute to, but do not fully explain, the gap in perceptions. Indeed, the significant influence of disability is evident after accounting for workplace fixed effects. It is this residual influence that may be attributed to real or perceived differences in treatment, or preferences for work, arising from disability.

Further examination of the role of the workplace indicates there is little difference in the raw disability gaps in perceptions across the public and private sector. However, after controlling for personal, employment and workplace characteristics, the disability gap in the public sector becomes insignificant across a range of measures. While these results are consistent with a role of corporate culture (Schur *et al.*, 2005) the difference in the influence of disability across sectors is not statistically significant. The paper also explores more specific attributes of workplaces through which corporate culture may operate. The disability gaps in perceptions narrow in workplaces with more active disability policies such as those where adjustments for disabled employees have been made and, particularly, where applications from disabled employees are encouraged. Importantly, it appears to be the existence of active practices, which may reflect a more favourable environment for disabled employees, rather than simply the presence of an equal opportunities policy or monitoring that is important for perceptions. Again though, the difference in the influence of disability across workplaces is not statistically significant which limits the conclusions that can be made in terms of these measures of corporate culture. The influence of disability is found to vary between workplaces defined by overall employee

perceptions of how managers treat employees and employee consultation. Disabled employees appear to benefit disproportionately and, as such, the disability gap in perceptions is removed in workplaces where employees express the most positive views of how managers treat employees and highest levels of manager-employee consultation. For job satisfaction, the differences across quartiles are consistently significant at conventional levels. Therefore, consistent with the analysis by Schur *et al.* (2009), there is evidence of a role of ‘corporate culture’, as measured by employee views in general.

Overall, there is clear evidence of a negative disability gap in perceptions of work and management in Britain that exists after controlling for personal, employment and workplace related characteristics. This is consistent with the international literature, and recent qualitative evidence which highlights raising awareness of disability in the workplace and tackling attitudinal barriers, the important role of line managers, and providing a supportive workplace for all employees (rather than exclusively the disabled) as mechanisms to develop a supportive workplace culture for individuals with disabilities (Adams and Oldfield, 2011). This paper examines the role of several aspects of corporate culture and while there is evidence that disability gaps narrow in the public sector, where there are proactive policies and in workplaces where employees report more positive views of managers, it is only in the latter where such differentials become significantly different. As such, any conclusions about the potential role of corporate culture on the perceptions of disabled employees are tentative. This may, in part, reflect the difficulty in measuring corporate culture and, as Stone and Colella (1996) highlight, it may be the implementation of policy and practice at the workgroup level that will have the most direct influence on disabled employees. As such, there is a clear need for future research which further explores the drivers of this residual influence of disability on the values, attitudes and perceptions employees. This is particularly true given the benefits of understanding and enhancing the experience of disabled individuals in work are not limited to enhanced equality or wellbeing but may include greater incentives to work, as well as important implications for effort, turnover and ultimately the performance of disabled employees in British workplaces.

While WERS has many advantages in this context, the main limitation is its cross sectional nature. Data with a richer source of longitudinal information on disability and work would

facilitate the analysis of how perceptions relate to disability onset and change with employment conditions (such as working conditions or management). It may also be the case that examination of heterogeneity among disabled employees in terms of the types, severity, and duration, and particularly, whether onset occurred whilst in employment with the current employer, will enhance our understanding of the processes involved. However, in future surveys, it would seem important to consider how such information is collected given the reluctance of employees to disclose long-term health problems at the workplace (Adams and Oldfield, 2011).

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**Table 1. An Overview of Employee Perceptions by Disability Status.**

	Average score	
	Non-disabled	Work-limited disabled
<i>Overall, how good would you say managers in this workplace are at... (5 point scale very poor to very good)</i>		
<i>Seeking the views of employees or employee representatives</i>	3.263	2.969***
<i>Responding to suggestions from employees or employee representatives</i>	3.187	2.891***
<i>Allowing employees or employee representatives to influence final decisions</i>	2.925	2.643***
<b>Management consultation index</b>	3.141	2.852***
<i>Now thinking about the managers at this workplace, to what extent do you agree or disagree with the following? Managers here (5 point scale strongly disagree to strongly agree)</i>		
<i>Can be relied upon to keep their promises</i>	3.306	2.956***
<i>Are sincere in attempting to understand employees' views</i>	3.414	3.132***
<i>Deal with employees honestly</i>	3.472	3.169***
<i>Understand about employees having to meet responsibilities outside work</i>	3.504	3.231***
<i>Encourage people to develop their skills</i>	3.521	3.275***
<i>Treat employees fairly</i>	3.470	3.162***
<b>Perception of management index</b>	3.446	3.149***
<i>In general, how would you describe the relations between managers and employees here? (5 point scale very poor to very good)</i>	3.653	3.322***
<i>Overall, how satisfied are you with the amount of involvement you have in decision making at this workplace? (5 point scale very dissatisfied to very satisfied)</i>	3.227	2.926***
<i>In general, how much influence do you have over the following? (4 point scale none to alot)</i>		
<i>What tasks you do in your job</i>	2.992	2.795***
<i>The pace at which you work</i>	3.001	2.848***
<i>How you do your work</i>	3.308	3.117***
<i>The order in which you carry out tasks</i>	3.381	3.281***
<i>The time you start or finish your working day</i>	2.427	2.293***
<b>Influence index</b>	3.023	2.871***
<i>To what extent do you agree or disagree with the following statements about working here? (5 point scale strongly disagree to strongly agree)</i>		
<i>I share many of the values of my organisation</i>	3.537	3.357***
<i>I feel loyal to my organisation</i>	3.801	3.626***
<i>I am proud to tell people who I work for</i>	3.674	3.484***
<b>Commitment index</b>	3.672	3.488***
<i>How satisfied are you with the following aspects of your job? (5 point scale very dissatisfied to very satisfied)</i>		
<i>The sense of achievement you get from your work</i>	3.764	3.570***
<i>The scope for using your own initiative</i>	3.816	3.612***
<i>The amount of influence you have over your job</i>	3.560	3.304***
<i>The training you receive</i>	3.332	3.111***
<i>The amount of pay you receive</i>	2.872	2.710***
<i>Your job security</i>	3.607	3.357***
<i>The work itself</i>	3.780	3.622***
<b>Job satisfaction index</b>	3.534	3.333***

Notes to table: Data are weighted. '\*' '\*\*' '\*\*\*' denote significance from the non-disabled group at the 10%, 5% and 1% level respectively.

**Table 2. Disability and Employee Perceptions**

		All workplaces					Restricted Sample	
		Without controls (1)	Personal characteristics (2)	Personal and employment characteristics (3)	Personal, employment and workplace characteristics (4)	Personal, employment, workplace, and outcomes (5)	Workplace fixed effects (6)	Workplace fixed effects (7)
<i>Perception of management index</i>	Disabled	-0.306*** (8.12)	-0.270*** (7.02)	-0.237*** (6.39)	-0.223*** (6.12)	-0.192*** (5.10)	-0.179*** (4.57)	-0.167*** (4.28)
	N	21937	20787	20181	18888	18019	18019	8722
	Adj R <sup>2</sup>	0.01	0.02	0.08	0.14	0.15	0.27	0.25
	F-test	38.50 (0.00)	12.32 (0.00)	25.89 (0.00)	20.24 (0.00)	23.02 (0.00)	18.94 (0.00)	15.28 (0.00)
<i>Management consultation index</i>	Disabled	-0.297*** (6.82)	-0.247*** (5.57)	-0.218*** (4.91)	-0.204*** (4.66)	-0.162*** (3.67)	-0.140*** (3.08)	-0.140*** (3.09)
	N	21673	20534	19936	18653	17807	17807	8628
	Adj R <sup>2</sup>	0.00	0.02	0.06	0.11	0.12	0.25	0.23
	F-test	27.27 (0.00)	9.74 (0.00)	19.39 (0.00)	13.65 (0.00)	16.59 (0.00)	16.66 (0.00)	13.04 (0.00)
<i>Commitment index</i>	Disabled	-0.184*** (5.02)	-0.181*** (4.99)	-0.168*** (4.68)	-0.159*** (4.42)	-0.135*** (3.70)	-0.114*** (2.91)	-0.113*** (2.91)
	N	21973	20819	20209	18913	18041	18041	8727
	Adj R <sup>2</sup>	0.00	0.03	0.07	0.11	0.14	0.24	0.23
	F-test	12.60 (0.00)	19.47 (0.00)	26.95 (0.00)	18.91 (0.00)	22.27 (0.00)	21.92 (0.00)	14.16 (0.00)
<i>Job satisfaction index</i>	Disabled	-0.205*** (6.86)	-0.226*** (7.44)	-0.208*** (6.82)	-0.202*** (6.63)	-0.169*** (5.43)	-0.163*** (4.97)	-0.157*** (4.77)
	N	22094	20915	20309	19010	18123	18123	8765
	Adj R <sup>2</sup>	0.00	0.02	0.07	0.10	0.14	0.22	0.21
	F-test	25.19 (0.00)	17.23 (0.00)	26.18 (0.00)	17.16 (0.00)	22.91 (0.00)	24.18 (0.00)	16.56 (0.00)
<i>Influence index</i>	Disabled	-0.152*** (5.49)	-0.164*** (5.79)	-0.121*** (4.23)	-0.124*** (4.28)	-0.110*** (3.83)	-0.107*** (3.31)	-0.103*** (3.16)
	N	22056	20884	20283	18987	18105	18105	8752
	Adj R <sup>2</sup>	0.00	0.03	0.12	0.14	0.17	0.23	0.23
	F-test	15.22 (0.00)	26.49 (0.00)	63.02 (0.00)	33.21 (0.00)	38.03 (0.00)	43.09 (0.00)	22.15 (0.00)

Notes to table: Data are weighted and standard errors are clustered at the level of the workplace. ‘\*’ ‘\*\*’ ‘\*\*\*’ denote the significance from zero at the 10%, 5% and 1% level respectively. Specification (1) includes two variables, work-limiting disability and non-work-limiting long-term health problems (not reported). Personal characteristics not reported include controls for age, gender, marital status, children, highest qualification and ethnicity. Employment controls include controls for part-time work, temporary work, trade-union membership, gender job concentration and occupation. Workplace controls include region, workplace size, single establishments, industry, teamwork, appraisal, formal job evaluation, performance related pay, managers perception of long-term employment prospects for employees, management approach to filling vacancies, redundancies and disputes. Controls for outcomes include hourly pay, training and supervisory responsibility. The restricted sample refers to workplaces with at least one disabled employee in the employee sample.

**Table 3. Disability and Employee Perceptions in the Public Sector**

		All Workplaces						Restricted Sample
		Without controls (1)	Personal characteristics (2)	Personal and employment characteristics (3)	Personal, employment and workplace characteristics (4)	Personal, employment, workplace, and outcomes (5)	Workplace fixed effects (6)	Workplace fixed effects (7)
<i>Perception of management index</i>	Disabled	-0.304*** (5.54)	-0.283*** (5.41)	-0.251*** (4.73)	-0.219*** (4.21)	-0.169*** (3.02)	-0.171*** (2.80)	-0.159** (2.48)
	N	6962	6580	6378	5865	5618	5618	2989
	Adj R <sup>2</sup>	0.01	0.04	0.09	0.13	0.14	0.23	0.24
	F	21.79 (0.00)	10.03 (0.00)	13.84 (0.00)	11.53 (0.00)	12.58 (0.00)	6.52 (0.00)	5.69 (0.00)
<i>Management consultation index</i>	Disabled	-0.252*** (3.99)	-0.218*** (3.48)	-0.187*** (2.96)	-0.159** (2.42)	-0.080 (1.17)	-0.072 (0.94)	-0.066 (0.83)
	N	6877	6497	6298	5794	5551	5551	2951
	Adj R <sup>2</sup>	0.00	0.02	0.05	0.08	0.11	0.19	0.20
	F	11.09 (0.00)	5.33 (0.00)	9.23 (0.00)	6.59 (0.00)	7.75 (0.00)	8.11 (0.00)	6.82 (0.00)
<i>Commitment index</i>	Disabled	-0.189*** (3.41)	-0.196*** (3.49)	-0.181*** (3.13)	-0.146** (2.56)	-0.105* (1.83)	-0.061 (0.95)	-0.059 (0.90)
	N	6984	6600	6395	5881	5629	5629	2995
	Adj R <sup>2</sup>	0.00	0.03	0.07	0.11	0.14	0.20	0.20
	F	6.08 (0.00)	7.61 (0.00)	10.82 (0.00)	8.44 (0.00)	10.23 (0.00)	5.53 (0.00)	4.64(0.00)
<i>Job satisfaction index</i>	Disabled	-0.226*** (4.82)	-0.241*** (5.30)	-0.222*** (4.89)	-0.183*** (4.13)	-0.140*** (2.82)	-0.124** (2.27)	-0.124** (2.18)
	N	7021	6628	6423	5909	5656	5656	3001
	Adj R <sup>2</sup>	0.01	0.04	0.08	0.11	0.14	0.20	0.22
	F	20.54 (0.00)	11.43 (0.00)	12.62 (0.00)	56.66 (0.00)	14.67 (0.00)	10.23 (0.00)	8.92 (0.00)
<i>Influence index</i>	Disabled	-0.137*** (3.22)	-0.139*** (3.28)	-0.099** (2.40)	-0.090* (1.92)	-0.063 (1.38)	-0.075 (1.46)	-0.079 (1.53)
	N	7002	6612	6409	5896	5645	5645	2993
	Adj R <sup>2</sup>	0.00	0.02	0.09	0.12	0.15	0.20	0.21
	F	5.80 (0.00)	4.43 (0.00)	13.06 (0.00)	10.48 (0.00)	13.10 (0.00)	11.82 (0.00)	9.48 (0.00)

Notes to table: See notes to Table 2.

**Table 4. Disability and Employee Perceptions in the Private Sector**

		All Workplaces					Restricted Sample	
		Without controls (1)	Personal characteristics (2)	Personal and employment characteristics (3)	Personal, employment and workplace characteristics (4)	Personal, employment, workplace, and outcomes (5)	Workplace fixed effects (6)	Workplace fixed effects (7)
<i>Perception of management index</i>	Disabled	-0.303*** (6.31)	-0.258*** (5.24)	-0.226*** (4.79)	-0.228*** (4.93)	-0.202*** (4.28)	-0.175*** (3.53)	-0.163*** (3.34)
	N	14975	14207	13803	13023	12401	12401	5733
	Adj R <sup>2</sup>	0.01	0.02	0.09	0.15	0.17	0.29	0.26
	F	22.18 (0.00)	8.19 (0.00)	20.13 (0.00)	16.97 (0.00)	19.48 (0.00)	14.80 (0.00)	11.84 (0.00)
<i>Management consultation index</i>	Disabled	-0.312*** (5.59)	-0.253*** (4.47)	-0.228*** (4.03)	-0.231*** (4.20)	-0.200*** (3.63)	-0.160*** (2.83)	-0.162*** (2.93)
	N	14796	14037	13638	12859	12256	12256	5677
	Adj R <sup>2</sup>	0.00	0.02	0.07	0.12	0.14	0.27	0.25
	F	17.72 (0.00)	7.60 (0.00)	15.27 (0.00)	12.38 (0.00)	25.73 (0.00)	12.21 (0.00)	9.45 (0.00)
<i>Commitment index</i>	Disabled	-0.183*** (3.94)	-0.173*** (3.81)	-0.162*** (3.65)	-0.172*** (3.86)	-0.153*** (3.41)	-0.132*** (2.74)	-0.133*** (2.81)
	N	14989	14219	13814	13032	12412	12412	5732
	Adj R <sup>2</sup>	0.00	0.03	0.08	0.13	0.15	0.25	0.25
	F	7.87 (0.00)	14.92 (0.00)	22.19 (0.00)	16.13 (0.00)	18.58 (0.00)	17.91 (0.00)	11.70 (0.00)
<i>Job satisfaction index</i>	Disabled	-0.196*** (5.23)	-0.220*** (5.73)	-0.205*** (5.33)	-0.214*** (5.60)	-0.185*** (4.85)	-0.180*** (4.47)	-0.173*** (4.32)
	N	15073	14287	13886	13101	12467	12467	5764
	Adj R <sup>2</sup>	0.00	0.02	0.07	0.11	0.15	0.23	0.21
	F	13.66 (0.00)	11.14 (0.00)	20.13 (0.00)	14.56 (0.00)	18.11 (0.00)	18.61 (0.00)	12.83 (0.00)
<i>Influence index</i>	Disabled	-0.156*** (4.42)	-0.169*** (4.69)	-0.129*** (3.55)	-0.134*** (3.67)	-0.125*** (3.45)	-0.116*** (2.86)	-0.107*** (2.61)
	N	15054	14272	13874	13091	12460	12460	5759
	Adj R <sup>2</sup>	0.00	0.04	0.14	0.15	0.19	0.24	0.24
	F	10.51 (0.00)	29.74 (0.00)	54.44 (0.00)	27.92 (0.00)	31.15 (0.00)	38.78 (0.00)	21.67 (0.00)

Notes to table: See notes to Table 2.

**Table 5. Disability and Employee Perceptions by Workplace Disability Policies**

		All Workplaces							
		Equal Opportunities		Hiring Disabled		Monitor		Adjustment	
		Yes	No	Yes	No	Yes	No	Yes	No
<i>Perception of management index</i>	Disabled	-0.191*** (4.35)	-0.170* (1.88)	-0.177** (2.38)	-0.184*** (4.09)	-0.181*** (3.47)	-0.179*** (3.12)	-0.147*** (2.85)	-0.220*** (3.71)
	N	14560	3195	3834	14120	8684	9236	9293	8613
	Adj R <sup>2</sup>	0.24	0.36	0.18	0.29	0.22	0.31	0.24	0.30
	F-test	15.14 (0.00)	6.67 (0.00)	6.47 (0.00)	14.70 (0.00)	9.87 (0.00)	11.58 (0.00)	11.59 (0.00)	9.48 (0.00)
<i>Management consultation index</i>	Disabled	-0.159*** (3.06)	-0.170* (1.79)	-0.102 (1.10)	-0.153*** (2.92)	-0.130* (1.93)	-0.147** (2.40)	-0.093 (1.44)	-0.202*** (3.14)
	N	14404	3146	3799	13943	8591	9119	9193	8500
	Adj R <sup>2</sup>	0.21	0.37	0.15	0.27	0.19	0.30	0.19	0.30
	F-test	13.65 (0.00)	6.14 (0.00)	7.07 (0.00)	12.70 (0.00)	10.32 (0.00)	9.40 (0.00)	10.22 (0.00)	8.98 (0.00)
<i>Commitment index</i>	Disabled	-0.141*** (3.06)	-0.063 (0.86)	-0.099 (1.26)	-0.117*** (2.63)	-0.127** (2.33)	-0.107* (1.96)	-0.097* (1.86)	-0.139** (2.36)
	N	14578	3200	3840	14137	8696	9247	9304	8622
	Adj R <sup>2</sup>	0.21	0.32	0.23	0.24	0.21	0.26	0.21	0.26
	F-test	15.94 (0.00)	7.12 (0.00)	5.58 (0.00)	17.96 (0.00)	9.93 (0.00)	14.41 (0.00)	10.76 (0.00)	13.92 (0.00)
<i>Job satisfaction index</i>	Disabled	-0.183*** (4.75)	-0.145** (2.30)	-0.083 (1.13)	-0.182*** (4.95)	-0.158*** (3.29)	-0.168*** (3.76)	-0.147*** (3.13)	-0.181*** (3.90)
	N	14630	3228	3860	14197	8732	9292	9347	8660
	Adj R <sup>2</sup>	0.21	0.28	0.23	0.22	0.20	0.24	0.21	0.24
	F-test	20.37 (0.00)	6.79 (0.00)	9.19 (0.00)	18.73 (0.00)	13.00 (0.00)	13.84 (0.00)	15.04 (0.00)	13.24 (0.00)
<i>Influence index</i>	Disabled	-0.147*** (4.16)	-0.017 (0.22)	-0.110 (1.64)	-0.103*** (2.82)	-0.119** (2.55)	-0.094** (2.12)	-0.080** (2.00)	-0.131** (2.57)
	N	14614	3226	3853	14186	8725	9281	9341	8648
	Adj R <sup>2</sup>	0.23	0.24	0.23	0.23	0.24	0.23	0.23	0.23
	F-test	31.91 (0.00)	15.41 (0.00)	8.75 (0.00)	40.25 (0.00)	19.34 (0.00)	29.79 (0.00)	24.40 (0.00)	24.16 (0.00)

Notes to table: Data are weighted and standard errors are clustered at the level of the workplace. ‘\*’ ‘\*\*’ ‘\*\*\*’ denote significance of the disability coefficient from zero at the 10%, 5% and 1% level respectively. The specification is the most comprehensive in Table 2 and includes workplace fixed effects (column 6).

**Table 6. Disability and Employee Perceptions by Workplace Characteristics**

		All Workplaces							
		Workplace Perception of Management				Workplace Management Consultation			
		Quartile 1	Quartile 2	Quartile 3	Quartile 4	Quartile 1	Quartile 2	Quartile 3	Quartile 4
<i>Commitment index</i>	Disabled	-0.143*	-0.204**	-0.092	-0.003	-0.109	-0.275***	0.024	-0.053
		(1.87)	(2.28)	(1.48)	(0.04)	(1.49)	(3.23)	(0.38)	(0.62)
	N	4596	4394	4540	4511	4652	4422	4533	4434
	Adj R <sup>2</sup>	0.17	0.12	0.14	0.21	0.16	0.17	0.13	0.23
<i>Job satisfaction index</i>	F-test	8.15 (0.00)	7.50 (0.00)	6.91 (0.00)	7.94 (0.00)	8.85 (0.00)	7.44 (0.00)	7.37 (0.00)	8.53 (0.00)
	Disabled	-0.215***	-0.254***	-0.105	-0.055	-0.230***	-0.281***	0.003	-0.067
		(3.57)	(3.64)	(1.56)	(0.90)	(3.97)	(3.74)	(0.06)	(1.06)
	N	4625	4407	4562	4529	4676	4441	4557	4449
<i>Influence index</i>	Adj R <sup>2</sup>	0.16	0.12	0.12	0.18	0.15	0.16	0.13	0.19
	F-test	10.34 (0.00)	8.87 (0.00)	8.78 (0.00)	7.88 (0.00)	8.13 (0.00)	12.44 (0.00)	7.90 (0.00)	7.51 (0.00)
	Disabled	-0.145**	-0.131**	-0.090	-0.046	-0.139**	-0.221***	-0.036	-0.001
		(2.34)	(2.17)	(1.28)	(0.83)	(2.24)	(3.11)	(0.62)	(0.02)
<i>Influence index</i>	N	4626	4402	4554	4523	4673	4437	4550	4445
	Adj R <sup>2</sup>	0.18	0.22	0.23	0.26	0.19	0.21	0.22	0.27
	F-test	12.88 (0.00)	14.48 (0.00)	16.52 (0.00)	15.92 (0.00)	12.88 (0.00)	16.93 (0.00)	21.13 (0.00)	12.78 (0.00)

Notes to table: See notes to Table 5.



**Appendix Table 1 Descriptive Statistics**

		Non-disabled	Work-limited disabled
Perception of managers index	See text for details.	3.416	3.136
Management consultation index	See text for details.	3.103	2.851
Commitment index	See text for details.	3.667	3.490
Job satisfaction index	See text for details.	3.523	3.310
Influence index	See text for details.	3.014	2.873
<b><i>Personal characteristics</i></b>	Dummy variable equals 1 if		
Non-work-limiting long-term health problem	A long-term health problem which is not classed as work-limiting disability; 0 otherwise	0.078	0.000
Female	Female; 0 otherwise	0.538	0.477
Single	Marital status is single; 0 otherwise	0.224	0.187
Married	Marital status is married or living with partner; 0 otherwise	0.677	0.707
Separated/Divorced (omitted)	Marital status is either separated or divorced; 0 otherwise	0.098	0.106
Children	Employee has dependent children; 0 otherwise	0.397	0.339
Non-white	Non-white ethnic group (mixed, asian, black or chinese); 0 otherwise	0.059	0.048
Age 16-21 (omitted)	Aged between 16 and 21; 0 otherwise	0.061	0.026
Age 22-29	Aged between 22 and 29; 0 otherwise	0.159	0.078
Age 30-39	Aged between 30 and 39; 0 otherwise	0.254	0.199
Age 40-49	Aged between 40 and 49; 0 otherwise	0.266	0.295
Age 50-59	Aged between 50 and 59; 0 otherwise	0.215	0.331
Age 60+	Aged 60 and over; 0 otherwise	0.045	0.070
No academic qualifications (omitted)	Highest academic qualification is none; 0 otherwise	0.156	0.227
Other academic qualifications	Highest academic qualification is other; 0 otherwise	0.154	0.200
GCSE level qualifications	Highest academic qualification is GCSE level grade A-C; 0 otherwise	0.262	0.256
A level academic qualifications	Highest academic qualification is A level or AS level; 0 otherwise	0.149	0.110
Degree level academic qualifications	Highest academic qualification is degree level; 0 otherwise	0.209	0.149
Higher degree level qualifications	Highest academic qualification is higher degree level (masters degree or PhD); 0 otherwise	0.070	0.057
<b><i>Employment Characteristics</i></b>	Dummy variable equals 1 if		
Manager or senior official	Employee's occupation is manager or senior official; 0 otherwise	0.114	0.085
Professional	Employee's occupation is professional; 0 otherwise	0.121	0.105
Associate professional and technical	Employee's occupation is associate professional and technical; 0 otherwise	0.168	0.144
Administrative and secretarial	Employee's occupation is administrative and secretarial; 0 otherwise	0.190	0.187
Skilled trades	Employee's occupation is skilled trades; 0 otherwise	0.066	0.098
Services	Employee's occupation is services; 0 otherwise	0.089	0.086
Sales and customer services	Employee's occupation is sales and customer services; 0 otherwise	0.069	0.064
Process, plant and machine operatives	Employee's occupation is process, plant and machine operatives; 0 otherwise	0.073	0.104
Elementary (omitted)	Employee's occupation is elementary; 0 otherwise	0.111	0.128
Temporary	Employee is on a temporary or fixed period contract; 0 otherwise	0.079	0.066
Part-time	Employee usually works less than 30 hours per week; 0 otherwise	0.218	0.248
Trade union member	Employee is a member of a trade union or staff association; 0 otherwise	0.363	0.483

Gender Concentration 1	Job is only done by men at the workplace, 0 otherwise	0.096	0.132
Gender Concentration 2	Job is mainly done by men at the workplace, 0 otherwise	0.167	0.176
Gender Concentration 3 (omitted)	Job is done equally by men and women at the workplace, 0 otherwise	0.377	0.355
Gender Concentration 4	Job is mainly done by women at the workplace, 0 otherwise	0.243	0.221
Gender Concentration 5	Job is only done by women at the workplace, 0 otherwise	0.057	0.055
Gender Concentration 6	Employee is the only person doing the type of work at the workplace, 0 otherwise	0.060	0.060
<b>Workplace Characteristics</b>	Dummy variable equals 1 if		
North East	Workplace is located in the North East; 0 otherwise	0.041	0.040
North West	Workplace is located in the North West; 0 otherwise	0.137	0.140
Yorkshire and Humberside	Workplace is located in Yorkshire and Humberside; 0	0.092	0.119
East Midlands	Workplace is located in the East Midlands; 0 otherwise	0.068	0.070
West Midlands	Workplace is located in the West Midlands; 0 otherwise	0.096	0.092
East of England	Workplace is located in the East of England; 0 otherwise	0.090	0.093
London	Workplace is located in London; 0 otherwise	0.104	0.080
South East	Workplace is located in the South East; 0 otherwise	0.124	0.112
South West	Workplace is located in the South West; 0 otherwise	0.088	0.087
Scotland	Workplace is located in Scotland; 0 otherwise	0.112	0.106
Wales (omitted)	Workplace is located in Wales; 0 otherwise	0.047	0.058
Manufacturing	Employee works in the manufacturing industry; 0 otherwise	0.146	0.186
Electricity, water and gas	Employee works in the electricity, water and gas industry; 0 otherwise	0.018	0.022
Construction	Employee works in the construction industry; 0 otherwise	0.047	0.049
Wholesale and retail trade	Employee works in the wholesale and retail trade; 0 otherwise	0.098	0.098
Hotel and restaurant	Employee works in the hotel and restaurant industry; 0 otherwise	0.026	0.019
Transport and communication	Employee works in the transport and communication industry; 0 otherwise	0.063	0.073
Financial services	Employee works in the financial services industry; 0 otherwise	0.063	0.047
Other business services	Employee works in other business services; 0 otherwise	0.116	0.086
Public administration	Employee works in public administration; 0 otherwise	0.083	0.101
Education	Employee works in the education; 0 otherwise	0.121	0.107
Health	Employee works in health; 0 otherwise	0.161	0.161
Other community services (omitted)	Employee works in other community services; 0 otherwise	0.060	0.050
Single establishment	Workplace is a single independent establishment not belonging to another body; 0 otherwise	0.183	0.185
Payment by results	Any employee at the establishment receives payment by results; 0 otherwise	0.291	0.282
Merit pay	Any employee at the establishment receives merit pay; 0 otherwise	0.270	0.243
Appraisal (in occupation)	The manager reports a formal appraisal system in the employees occupational group; 0 otherwise	0.741	0.711
Longterm4	Employer <i>strongly agrees</i> that employees are led to expect long-term employment in the organisation; 0 otherwise	0.308	0.324
Longterm3	Employer <i>agrees</i> that employees are led to expect long-term employment in the organisation; 0 otherwise	0.478	0.475
Longterm2	Employer neither <i>agrees</i> nor <i>disagrees</i> that employees are led to expect long-term employment in the organisation; 0 otherwise	0.119	0.110
Longterm1 (omitted)	Employer <i>disagrees</i> or <i>strongly disagrees</i> that employees are led to expect long-term employment in the organisation; 0 otherwise	0.095	0.091
Vacancy1	Workplace has a preference for filling vacancies from internal applicants, 0 otherwise	0.293	0.300
Vacancy2 (omitted)	Workplace has no preference for filling vacancies from internal or external applicants, 0 otherwise	0.666	0.661

Vacancy3	Workplace has a preference for filling vacancies from external applicants, 0 otherwise	0.041	0.039
Dispute	There has been a collective dispute over pay and conditions in the last year; 0 otherwise	0.101	0.126
Job evaluation	Workplace has a formal job evaluation scheme; 0 otherwise	0.363	0.407
Teamwork 100%	100% of the largest occupational group work in teams; 0 otherwise	0.412	0.448
Teamwork 80-100%	80-100% of the largest occupational group work in teams; 0 otherwise	0.253	0.250
Teamwork 0-80% (omitted)	0-80% of the largest occupational group work in teams; 0 otherwise	0.335	0.302
Log workplace size	Log of the total number of employees in workplace.	4.767	4.814
Redundancy	Percentage of employees (in employment last year) that have been made redundant.	1.542	1.598
<b>Employee Outcomes</b>			
Supervise	Dummy variable equals 1 if Employee reports supervising other employees; 0 otherwise	0.347	0.318
Train	Employee has received employer provided non-health and safety training over the last year; 0 otherwise	0.662	0.575
Log hourly pay	Log of hourly pay (midpoint band of weekly pay/usual weekly hours). Outliers are removed by constraining values to lie between the 1 <sup>st</sup> and 99 <sup>th</sup> percentile.	2.165	2.104
<b>Workplace Measures</b>			
Public sector	Dummy variable equals 1 if Workplace is in the public sector (Government-owned limited company / Nationalised industry / Trading Public Corporation; Public service agency; Other non-trading public corporation; Quasi Autonomous National Government Organisation; Local/Central Government); 0 otherwise.	0.316	0.352
Private sector	Workplace is in the private sector (Public Limited Company; Private limited company; Company limited by guarantee; Partnership / Self-proprietorship; Trust / Charity; Body established by Royal Charter; Co-operative / Mutual / Friendly society); 0 otherwise.	0.684	0.648
Manager perception quartile 1	Workplace is in the bottom 25% of the workplace manager perception distribution; 0 otherwise	0.248	0.300
Manager perception quartile 2	Workplace is between 25% and 50% of the workplace manager perception distribution; 0 otherwise	0.250	0.257
Manager perception quartile 3	Workplace is between 50% and 75% of the workplace manager perception distribution; 0 otherwise	0.250	0.229
Manager perception quartile 4	Workplace is in the top 25% of the workplace manager perception distribution; 0 otherwise	0.251	0.215
Manager consultation quartile 1	Workplace is in the bottom 25% of the workplace manager consultation distribution; 0 otherwise	0.250	0.298
Manager consultation quartile 2	Workplace is between 25% and 50% of the workplace manager consultation distribution; 0 otherwise	0.246	0.260
Manager consultation quartile 3	Workplace is between 50% and 75% of the workplace manager consultation distribution; 0 otherwise	0.254	0.226
Manager consultation quartile 4	Workplace is in the top 25% of the workplace manager consultation distribution; 0 otherwise	0.249	0.217
Workplaces with employee disability (restricted sample)	Workplace has at least one disabled employee in the employee sample; 0 otherwise.	0.458	1.000
Hiring disabled	Workplace has special procedures to encourage applications from disabled individuals; 0 otherwise	0.221	0.236
Adjustment	Adjustments have been made at the workplace to accommodate disabled employees; 0 otherwise	0.519	0.553
Equal opportunities	Workplace has an equal opportunities policy which explicitly mentions treatment on the grounds of disability; 0 otherwise	0.823	0.814
Monitor	Workplace monitors any of the following with respect to disability (recruitment and selection, promotions or pay); 0 otherwise	0.495	0.512

Notes to table: Data are unweighted.

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<sup>i</sup> One exception is Jones and Sloane (2010) who use self-assessed skill mismatch in WERS and find that disabled workers are significantly more likely to report being overskilled, that is, they assess their skills as higher than required for their current job. Outside the labour market, disability has been used as an example of a 'life shock' from which the adaptation of subjective wellbeing has been assessed (see, Powdthavee, 2009).

<sup>ii</sup> Individuals should only answer the second question following a positive response to the first. A small number of mutually inconsistent responses are dropped from the analysis. Those who respond positively to the first, but not the second question are defined to have a non-work-limiting long-term health problem and those that respond negatively to the first question are classified as without a long-term health problem.

<sup>iii</sup> Despite its widespread use, self-reported information on disability has been subject to a range of criticisms, most importantly that responses may be affected by labour market outcomes. For example, individuals may use disability to justify their (inferior) labour market status (see Bound, 1991) (the so called 'justification bias' hypothesis). The existing literature provides mixed conclusions on the extent of this bias; however, the influence of justification bias is likely to be reduced given our focus on employees.

<sup>iv</sup> To maintain the sample size we do not constrain employees to have a valid response to every item in the index. The main results are not sensitive to this.

<sup>v</sup> While the index averages across ordinal responses Ferrer-i-Carbonell and Frijters (2004) find that assuming cardinality or ordinality does not affect estimation results and studies often apply OLS to measures of this nature to simplify interpretation. The key results are unchanged, if instead, tobit models are used.

<sup>vi</sup> The alternative would be to use the manager's report of the percentage of employees with a disability (where 630 workplaces are defined as having disabled employees) but this relies on managers accurately estimating employee disability. Given the imperfect nature of both measures and the inconsistencies between the two measures (59% of workplaces are classified consistently according to both measures) the full sample of workplaces is retained for the majority of the analysis.

<sup>vii</sup> We also considered the role of flexible working practices (working from home; ability to reduce working hours; ability to increase working hours; job sharing; flexi time) since disabled employees may benefit disproportionately. However, we find no evidence that either the number or type of flexible work practices consistently influence the disability gap in perceptions which may reflect that the measures in WERS capture incidence rather than prevalence within the workplace.

<sup>viii</sup> We investigated this issue using an instrumental variable (2SLS) procedure where disability is estimated using a linear probability model. As in many applications, it is difficult to identify plausible instruments and the percentage of employees within the workplace who are work-limited disabled (as reported by the manager) is used here. With an F statistic of nearly 30 in the first stage regression the instrument is relevant, but, with a single instrument, it is not possible to test for over-identification. In this model we are unable to reject the null that disability is exogenous for 4 out of the 5 perception measures (the exception being influence). Given this, and the lack of clearly reliable instruments, we present and focus on the results from the OLS specifications.

<sup>ix</sup> The proportion of employees in workplaces in the private (public) sector with (1) an EO policy is 73% (93%), (2) that actively encourages applications from disabled individuals is 11% (47%), (3) that monitors for disability discrimination is 35% (77%) and (4) where an adjustment has been made to accommodate a disabled employee is 37% (72%).

<sup>x</sup> These results are not sensitive to the exclusion of workplaces where the average is created from fewer than 3 employees (which account for less than 1% of the sample in each case) but are more mixed if disabled employees are excluded from the construction of the workplace mean.